REMARKS

In the Office Action dated November 17, 2005, claims 5-7 and 13-15 were rejected under §112, second paragraph as being indefinite because of the use of the word "allows" in those claims. Those claims have been amended to remove the word "allows" and are submitted to be in full compliance with all provisions of §112.

Claims 1-4 and 9-12 were rejected under 35 U.S.C. §102(e) as being anticipated by Donnelly et al. Claims 1, 2, 4-6, 8-10, 12-14 and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by Zhong et al. Claims 7 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zhong et al.

These rejections are respectfully traversed for the following reasons. As the Examiner is aware, the terms "monochromatic radiation" and "monochromatic beam" in the field of X-ray technology refer to X-ray radiation or an X-ray beam that exhibits a single wavelength, and thus a single frequency, and thus a single energy. Typically, such monochromatic radiation is produced by passing radiation emitted from an X-ray source through a component known as a monochromator, which typically is a crystal having a uniform crystal lattice structure that causes the radiation emerging from the crystal to have an energy spectrum with a sharply defined peak, this peak occurring at an energy that follows from the Bragg relation. The Bragg relation in turn, as indicated at page 6 of the present application, includes a value "a" in the denominator that represents the spacing of the crystal lattice. Because such a monochromator, be definition, exhibits a uniform lattice structure, the spacing "a" is the same throughout the crystal, thereby causing the sharply defined maximum peak in the energy spectrum of the emerging radiation.

As explained in the introductory portion of the present specification, although radiation having such a single energy is useful for many purposes, in some situations it is not optimum, and X-ray radiation with a spread spectrum, that is broader than the narrow peak obtained by single-lattice Bragg reflection, is desirable. For the purpose, is known to make use of mosaic crystals that do not have uniform lattice structures, and therefore do no produce the sharply defined energy peak that results from interaction of X-rays with a "pure" crystal.

In order to be able to obtain different spread energy spectra, European Application 0 924 967, discussed at pages 2 and 3 of the present specification, makes use of multiple mosaic crystals to provide various Bragg angles. This known arrangement has the inherent disadvantage that different propagation paths must be predetermined for the X-rays, and this the emitted X-rays have to be individually aimed at the particular object to be examined.

The devices and systems disclosed and claimed in the present application overcome this problem by providing a crystal that produces such a spread or broadened energy spectrum, which is used with a positioning device to position the crystal to vary or adjust the spectral composition of the energy spectrum of the X-rays that emerge from such a crystal.

Unfortunately, such crystals that produce such a spread energy spectrum are still conventionally referred to in the art as "monochromators," as evidenced by several of the prior art references supplied by the present Applicants in the Information Disclosure Statement filed in July 2, 2004. Therefore, this terminology was used in the present specification, even though the present specification makes clear that the various devices disclosed in the specification are not "true"

monochromators or "pure" monochromators in the sense of producing an energy spectrum with the aforementioned narrowly defined peak.

The present specification therefore has been amended to provide a paragraph explaining the difference between the subject matter of the invention and a conventional "true" monochromator. Since this is consistent with the explanation at page 3 in the paragraph immediately preceding the added paragraph as well as the explanation on page 6, no new matter is added thereby. Additionally, at a few locations the term "monochromatized X-radiation 11" was used, and at each of those locations this term has been changed to "spectrally restricted X-radiation 11." The term "spectrally restricted X-radiation 11" was used at numerous locations in the specification as originally filed, such as at page 6, lines 4 and 5, and therefore this change does not constitute new matter.

Each of the independent claims also has been amended to include language consistent with the above explanation. Although the term "monochromator" has been retained in those claims, it is clear that the claims are claiming something other than a conventional "pure" monochromator, because the added description in the language of the independent claims does not apply to such a "pure" monochromator.

Both the Donnelly et al. and Zhong et al. references relied upon by the Examiner disclose a "true" monochromator, wherein X-ray radiation is produced having the conventional narrowly defined peak according to the Bragg relation, and therefore both of those references are directed to the type of device described in the introductory portion of the present specification, wherein X-ray radiation of a single energy is produced. The Donnelly et al. and Zhong et al. references, therefore, exhibit the same disadvantages of those types of conventional monochromators.

A monochromator that produces a spread or enlarged energy spectrum, as now set forth in the amended independent claims, is not disclosed or suggested in either the Donnelly et al. or Zhong et al. references. Therefore, neither of those references anticipates any claim of the application, nor would it have been obvious to a person of ordinary skill in the field of X-ray system design to modify either of those references to employ anything other than a "true," single-energy monochromator.

Even if the "true" monochromator disclosed in either of the Donnelly et al. or Zhong et al. references can be moved relative to the X-ray beam, this still does not change the spectral composition of the X-rays, as required in the independent claims of the present application.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,

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